

# ANSWERS TO THE TRUE/FALSE QUIZ

1. TRUE - Bees (and all insects) have two large compound eyes on either side of their heads and three simple eyes on top of their head. With the compound eyes, bees see a mosaic picture; the simple eyes distinguish light from dark.
2. TRUE - Bees and their relatives actually have four wings. Before a bee leaves the hive, she hooks her wings together so she has greater lift and strength while flying. When entering the hive again, she will unhook her wings so that they will not take up so much space.
3. FALSE - Bees collect nectar (the sweet sugar sap flowers make) and pollen (the powder that pollinates flowers). Sugars in the nectar are converted into honey, and the protein-rich pollen, is mixed with honey and is made into bee bread.
4. TRUE - Worker bees live only six weeks during the summer; they literally kill themselves with work. In old bees, the wings and other body parts become frayed and tattered as they wear out.
5. FALSE - Bees, while related to wasps and hornets, are gentler, live in tree hollows, make wax combs and gather only nectar and pollen. Wasps and hornets make their homes of paper, mud or live underground, make no honey or wax, sting more readily and prey on other insects.
6. TRUE - Smoke causes bees to gorge honey, filling their stomachs and making them heavy. It also masks any of the alarm odor that the guard bees release when disturbed. Instead of exciting more bees with the release of this odor, smoke distracts potential stingers.
7. FALSE - A close examination of the sting barb of a honey bee shows that it has tiny hooks on it. When stinging a person or animal, the hooks catch in the skin and as the bee tries to fly off, it pulls out its entire stinging organ, thus killing it. Wasps and hornets have smoother sting barbs, which will not snag; they can therefore sting a person repeatedly.
8. TRUE - Since flowers and bees evolved together 60 million years ago, each has evolved special functions for their mutual benefit. For bees, one such special feature is their hind legs, which serve as a press and basket to collect pollen grains.
9. TRUE - Honey bees are not native to the New World. The first recorded introduction of bees was to Massachusetts by Puritan colonists in the 1630's. They were needed to pollinate the recently introduced apple trees!
10. TRUE - Bees, unlike many insects, have refined color vision. Not only do they see blues and yellows but also the invisible ultra-violet light. They cannot however see red, which appears as black to them.
11. TRUE - Research has shown that bees can distinguish one, two, three, four, five and many petals on flowers. They can also find their hive in a row of five or six.
12. FALSE - One of the principle losses of bee hives worldwide, is the improper and careless use of insecticides toxic to honey bees. Please be considerate next time you use any of these products.
13. FALSE - Bees and all insects have six legs and three body parts (head, thorax, abdomen). Spiders, mites and ticks, called *arachnids* have eight legs and two body parts (no thorax).
14. FALSE - Honey comes from flower nectars. When a bee visits a flower, she sucks up the sweet sap with her long tongue into an inflatable sack, called a honey stomach. When it is full, the bee returns to the hive, regurgitates the drop of nectar into the honeycomb, and evaporates out the water by fanning. Nectar is about 80% water while honey is only 17%.
15. TRUE - Since honeybees and flowers co-evolved (see #8), a special feature of many flowers to attract pollinating bees is to have markings invisible to all but bees. These marks, called *nectar guides*, position the bee so it will pollinate the flower, while rewarding the bee with sweet nectar and protein-rich pollen.
16. TRUE - The heart of insects is a long vein, which travels along the back. Openings in the vein allow the free-flowing blood, to enter the body of the insect. Blood is then pumped towards the wings and head.